RESTENOSIS IN SINGLE PALMAZ-SCHATZ™ CORONARY STENTS: EFFECTS OF PRIOR PTCA AND INTERVAL TO PRIOR PTCA

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Follow-up angiographic results of the first 106 consecutive elective implantations of a single Palmaz-Schatz™ stent in native coronaries were analyzed. The mean follow-up was 6.9 months (range: 2 to 14 months). Elective stent implantation was performed for restenosis after prior PTCA in 71 (67.0%) patients (prior PTCA group) and as the initial revascularization procedure in 35 (33.0%) patients (primary group). Restenosis rates were 22.6% (24/106) for the entire group, 31.0% (22/71) for the prior PTCA group and 5.7% (2/35) for the primary group ($p < 0.0001$). The prior PTCA group was subdivided into an early (≤3 months from prior PTCA to stent implantation) post-PTCA restenosis subgroup (Subgroup A, n=27) and a late (>3 months from prior PTCA to stent implantation) post-PTCA restenosis subgroup (Subgroup B, n=44). Restenosis rates were 48.1% (13/27) in Subgroup A and 20.5% (9/44) in Subgroup B ($p < 0.003$).

CONCLUSIONS:
1. The overall restenosis rate after implantation of single Palmaz-Schatz™ stents appears to be low, (22.6%).
2. In patients with no prior PTCA, the restenosis rate after stenting is significantly lower (5.7%) than in patients with prior PTCA (31.0%), $p < 0.0001$.
3. In patients with prior PTCA, the restenosis rate after stenting is significantly lower in patients with late (>3 months) post PTCA restenosis (20.5%) than in patients with early (≤3 months) post PTCA restenosis (48.1%), $p < 0.003$.

AMBULATORY MONITORING OF EJECTION FRACTION IN HYPERTENSION: ABNORMAL RESPONSES IN PATIENTS WITH VENTRICULAR HYPERTROPHY

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To evaluate the effects of long standing hypertension (H) on ventricular function, ambulatory radionuclide monitoring of LV ejection fraction (LVEF) and blood pressure (MAP) were carried out during exercise and other structured activities in 31 H pts with and without left ventricular hypertrophy (LVH). Pts were divided into 3 groups based on absence of LVH (Grp 1, n=16), presence of LVH without ECG changes (Grp 2, n=10), and LVH with associated ECG changes (Grp 3, n=5). The Grps were similar with respect to age, baseline (B) medication, MAP on and off medication, resting EF, and exercise (E) treadmill time. Pts in Grp 3 had a longer history of H, and those in Grps 2 and 3 (141±8, 158±9 gm/ m^2) had greater LV mass compared to Grp 1 (107 ± 12 gm/m^2). Diastolic filling as measured by peak filling rate (PFR) was normal in Grp 1, but abnormal at rest in Grps 2 and 3. Pts in Grp 1 had normal EF responses to E and mental stress (MS), as well as during routine ambulatory activities. Pts in Grp 2 had a blunted EF response to E and those in Grp 3 had an abnormal response. Pts in Grps 2 and 3 responded abnormally to MS, as well as other structured tests. Decreases in EF were also observed on 12 occasions during routine monitoring, in 3 Grp 3 pts and 4 pts in Grp 2. These events were associated with significant increases in MAP which either proceeded or occurred at the same time as the fall in EF. On all occasions the decrease in EF was due to an increase in end systolic volume index. (*p<.05 difference from B).

	Grp 1			Grp 2			Grp 3		
	B	E	MS	B	E	MS	B	E	MS
EF	67±8	80±6*	71±5	65±8	68±7	57±8*	63±9	62±6	51±9*
MAP	114	136 *	130 *	116	138 *	142 *	117	135 *	149 *
PFR	2.9	3.8 *	3.3 *	2.4	2.7	2.1	2.1	2.3	1.8

The study suggests that LV systolic dysfunction can be uncovered in pts with increased LV mass when MAP is elevated. These results can be explained by increases in afterload in pts with LVH, but inadequate ventricular filling or ischemia may explain why these pts are at increased risks for cardiac events.

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Poster Displayed: 9:00AM–12:00NOON
Author Present: 11:00AM–12:00NOON
Hall F, West Concourse
Hypertensive Heart Disease

ABNORMALITIES OF AMBULATORY BLOOD PRESSURE AND DIASTOLIC FUNCTION PRECEDE MICROALBUMINURIA IN YOUNG NORMOTENSIVE INSULIN DEPENDENT DIABETICS.

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Microalbuminuria (M) has emerged as an important marker of elevated blood pressure (BP) and cardiovascular (CV) abnormalities in insulin dependent diabetes mellitus (IDDM). The purpose of this study was to determine whether CV abnormalities could be detected at a stage before the development of M or other complications of IDDM. Thirty three young normotensive IDDM pts without M (mean age 27; 13-44 years, 16 males) were compared with 20 normotensive non-diabetic subjects with a similar age (mean 26; 16-46 years) and sex distribution. All pts underwent clinical evaluation, 24 hour ambulatory BP monitoring and a complete echocardiography/doppler study. Although overall mean 24 hour systolic and diastolic pressures were similar, peak systolic and diastolic pressures were higher in IDDM pts (156 ± 18/112 ± 15 vs 147 + 13/103 + 16mmHg P<0.05). Heart rate was higher in the IDDM pts (88 + 10 vs 73 ± 11 beats/min P<0.001). The ratio of peak early to late filling velocities was lower (1.4 ± 0.2 vs 1.7 + 0.3; P<0.001) and peak atrial filling velocity higher (0.5 ± 0.1 vs 0.4 ± 0.1m/s; P<0.005) in IDDM than controls but this was not accompanied by any alteration in LV mass or wall thickness or abnormalities in systolic function. Eight IDDM pts (24%) had a peak early to late filling ratio of ≤1.1. Thus alterations in ambulatory BP and diastolic LV function appear to predate other markers of CV involvement including M and may provide the earliest marker for the future development of hypertension in IDDM.

AGE-ADJUSTMENT IMPROVES UTILITY OF ECG CRITERIA FOR LEFT VENTRICULAR HYPERTROPHY

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A linear regression model was developed to examine the impact of age on the relationship between ECG voltage and echocardiographic left ventricular mass (LVM) in 3257 subjects of the Framingham Heart Study. The study population included 1431 men (mean age 49 years) and 1826 women (mean age 50 years). Coefficients for age were then used to adjust Cornell ECG voltage criteria for left ventricular hypertrophy (LVH) as follows: Age-adjusted voltage = R-AVL + S-V3 (in mV) + coefficient x (age - 50). The coefficient in men = 0.019, and in women = 0.049. We examined the sensitivity of unadjusted and age-adjusted ECG voltage in 219 men and 324 women xxx subjects with echocardiographically confirmed LVH, while sensitivity was assessed in 1212 men and 1502 women xxxx subjects with normal LVM. Sensitivity was tested with specificity arbitrarily set at 95%; specificity was tested with sensitivity set at 30%. Statistical testing of differences in sensitivity and specificity was performed with the McNemar test.

	SENSITIVITY		SPECIFICITY	
	MEN	WOMEN	MEN	WOMEN
Unadjusted	19%	20%	91%	90%
Age-adjusted	24%	29%	92%	95%
P-Value	<0.005	<0.001	>0.05	<0.001

We conclude that age-adjustment improves the sensitivity of commonly utilized ECG voltage criteria for LVH without adversely affecting specificity. This approach improves the diagnostic utility of the ECG for the detection of LVH.